

Brief description of the functional changes proposed:
Relax transmitter differential return loss from 12dB to 10dB. Changes to table 4-5 (page 213):

Symbol	Parameter	Min	Nom	Max	Units	Comments
RL_{TX-DIFF}	Differential Return Loss	10			dB	Measured over 50 MHz to 1.25 GHz See Note 4.

Relax receiver differential return loss from 15dB to 10dB. Changes to table 4-6 (pgs 216 & 217):

Symbol	Parameter	Min	Nom	Max	Units	Comments
RL_{RX-DIFF}	Differential Return Loss	10			dB	Measured over 50 MHz to 1.25 GHz with differential test input signals of 300mV (RMS value) swing around ground applied to D+ and D lines. See Note 9.
RL_{RX-CM}	Common Mode Return Loss	6			dB	Measured over 50 MHz to 1.25 GHz with differential test input signals of 300mV (RMS value) swing around ground applied to D+ and D lines. See Note 9.

Clarify return loss measurement conditions. Changes to Note 4 under table 4-5 (page 214):

Note 4 -

The Transmitter input impedance shall result in a differential return loss greater than or equal to 10 dB with differential test input signals of 300mV (peak value) swing around ground applied to D+ and D- lines and a common mode return loss greater than or equal to 6 dB over a frequency range of 50 MHz to 1.25 GHz. This input impedance requirement applies to all valid input levels. The reference impedance for return loss measurements is 50 ohms to ground for both the D+ and D- line (i.e., as measured by a Vector Network Analyzer with 50 ohm probes - see Figure 4-25). Note that the series capacitors CTX is optional for the return loss measurement.

Clarify return loss measurement conditions. Changes to Note 9 under table 4-6 (page 217):
<p>Note 9 -</p> <p>The Receiver input impedance shall result in a differential return loss greater than or equal to 10 dB with differential test input signals of 300mV (peak value) swing around ground applied to D+ and D- lines and a common mode return loss greater than or equal to 6 dB over a frequency range of 50 MHz to 1.25 GHz. This input impedance requirement applies to all valid input levels. The reference impedance for return loss measurements for is 50 ohms to ground for both the D+ and D- line (i.e., as measured by a Vector Network Analyzer with 50 ohm probes – see Figure 4-25). Note: that the series capacitors CTX is optional for the return loss measurement.</p>
Specification(s) this proposed change is against:
PCI Express Base Specification, rev. 1.0a
Benefits as a result of the proposed changes:
Allow the buffer and package design to meet a more realistic spec target.
An assessment of the impact to the existing revision and systems that currently conform to the PCI specification:
Transmitter and receiver design will have a relaxed budget. However, additional simulations are necessary to ensure receiver package design will have a sufficient “eye” opening at the die.
An analysis of the hardware implications:
Return Loss design targets change for transmitter and receiver package and buffer design. Better definition for the measurements of return loss target using a VNA.
An analysis of the software implications:

None.